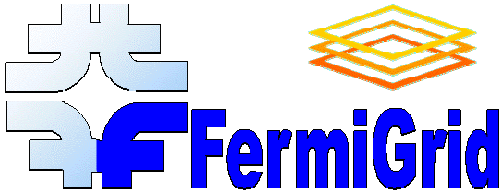
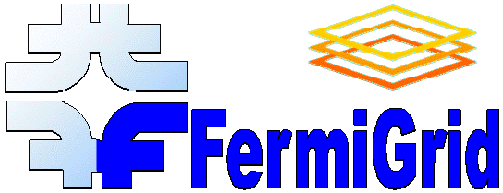


FermiGrid
Farms Users

Keith Chadwick

06-Jul-2005

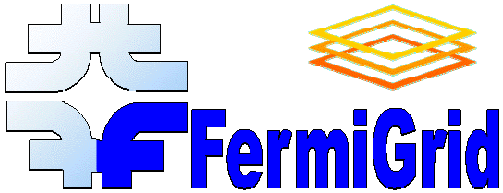


What Is It?

In order to better serve the entire program of Fermilab, the Computing Division has undertaken the strategy of placing all of its production resources in a Grid "meta-facility" infrastructure called FermiGrid.

http://fermigrid.fnal.gov

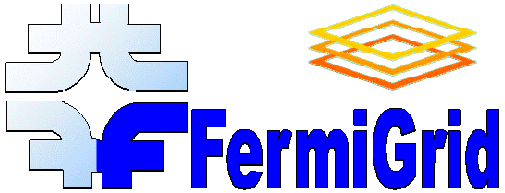
http://grid.fnal.gov/fermigrid/



Strategy & Benefits

This strategy is designed to allow Fermilab:

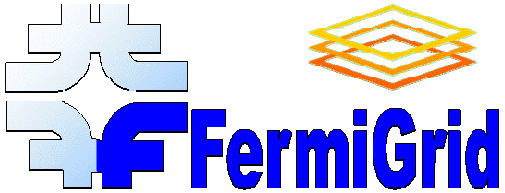
- to insure that the large experiments who currently have dedicated resources to have first priority usage of those resources that are purchased on their behalf.
- to allow opportunistic use of these dedicated resources, as well as other shared Farm and Analysis resources, by various Virtual Organizations (VO's) that participate in the Fermilab experimental program and by certain VOs that use the Open Science Grid (OSG).
- to optimise use of resources at Fermilab.
- to make a coherent way of putting Fermilab on the Open Science Grid.
- to save some effort and resources by implementing certain shared services and approaches.
- to work together more coherently to move all of our applications and services to run on the Grid.
- to better handle a transition from Run II to LHC in a time of shrinking budgets and possibly shrinking resources for Run II worldwide.
- to fully support Open Science Grid and the LHC Computing Grid and gain positive benefit from this emerging infrastructure in the US and Europe.



Facility Elements

The FermiGrid "meta-facility" is comprised of the following four elements:

- Common Grid Services.
- Stakeholder Bilateral Interoperability.
- Open Science Grid Interfaces.
- Permanent Storage System Interfaces.



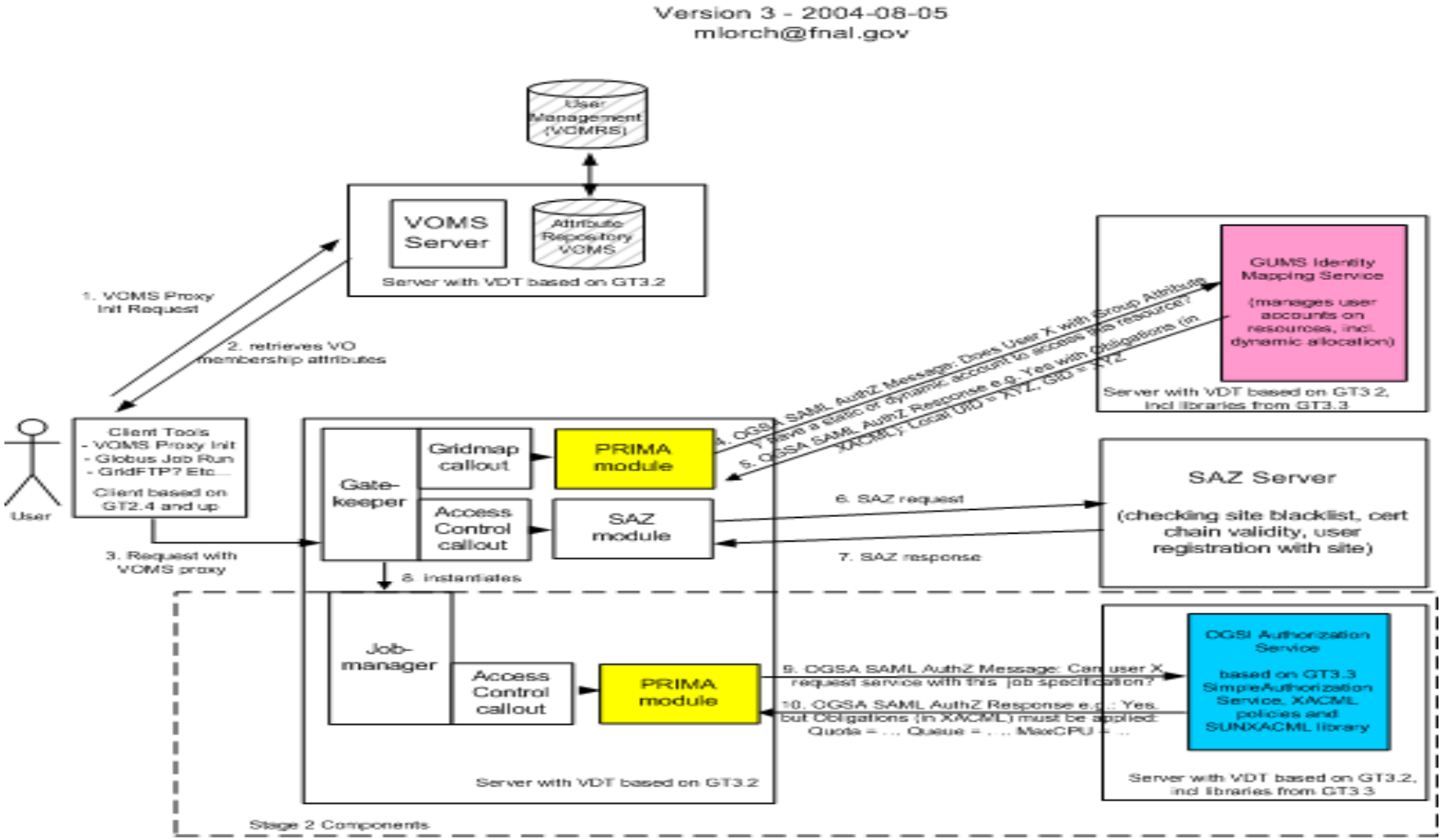
Common Grid Services

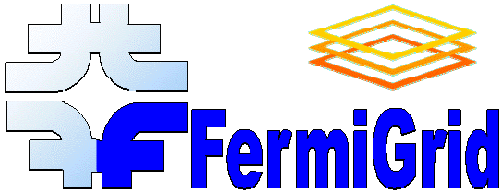
These are the set of centrally supported Grid computing infrastructure for use by experiments and Virtual Organizations (VOs) hosted by Fermilab. These services include:

- a site wide Globus gateway,
- Virtual Organization Membership Service (VOMS),
- VOM Registration Service (VOMRS),
- Grid User Management System (GUMS),
- and Site AuthoriZation Service (SAZ).

The FermiGrid Operations Team meets every Friday in the FCC1 Conference Room at 2:00 PM Central Time.

How The Common Grid Services Work Together





Stakeholder Bi-Lateral Interoperability

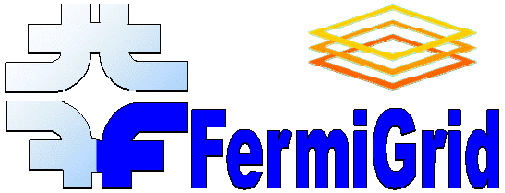
At Fermilab, the Computing Division operates several dedicated resources for large experiments and VOs.

These experiments and VOs will continue to have first priority usage of those resources which were (and continue to be) purchased on their behalf.

The goal of the stakeholder bi-lateral interoperability element effort is to achieve scheduled and opportunistic sharing of the dedicated computing clusters.

The FermiGrid Stakeholders meet on alternate Mondays in the FCC1 Conference Room at 3:00 PM Central Time.

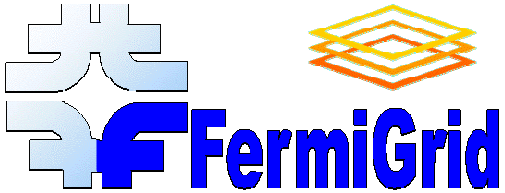
http://fermigrid.fnal.gov/stakeholder-interoperability.html



Open Science Grid Interfaces

At Fermilab, compute resources are available in the context of the OSG Compute Element (CE).

The goal of the open science grid interfaces element effort is to enable the opportunistic use of Fermilab compute elements in a secure manner by external VO's using OSG interfaces.

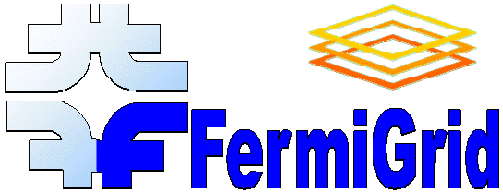


Permanent Storage System Interfaces

At Fermilab, storage resources are available in the context of the OSG Storage Element (SE).

The preferred Grid interface is via the Storage Resource Manager (SRM).

The storage elements are either buffering (used to cache and assemble data sets) or custodial (used for long-term retention of scientific data).

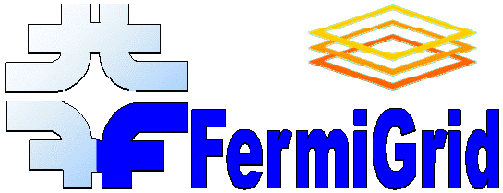


What It Means To You

FermiGrid will allow you to make use of GP Farm resources.

FermiGrid will allow you to make opportunistic use of other Fermilab "dedicated" resources (CDF, CMS, D0, etc.).

FermiGrid will allow you to make opportunistic use of OSG resources.



Prerequisites

Three prerequisites:

- A grid user certificate (either kx509 or DoE Grids).
- Membership (registration) in a VO.
- Install the VDT toolkit:
  - http://www.cs.wisc.edu/vdt//index.html

Grid User Certificates

Fermilab Kerberos principals can be used to generate your grid user certificate using the kx509 command or the get-cert procedure written by Joe Klemencic:

- http://computing.fnal.gov/security/pki/Get-KCA-Cert.html
- http://computing.fnal.gov/security/tools/

Longer lived certificates are available from DoE Grids:

- http://www.doegrids.org/
- http://computing.fnal.gov/security/pki/Get-Personal-DOEGrids-Cert.htm

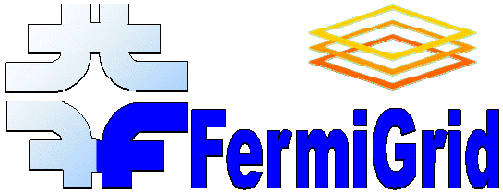
VO Membership

We have created the “fermilab” VO and registered it with the Open Science Grid.

All active Kerberos principals are automatically registered with the “fermilab” VO.

If you have a DoE Grids user certificate, you can request that it be added to the “fermilab” VO through the VOMRS interface:

- https://voms.fnal.gov:8443/vomrs/vo-fermilab/vomrs



VO Groups 1

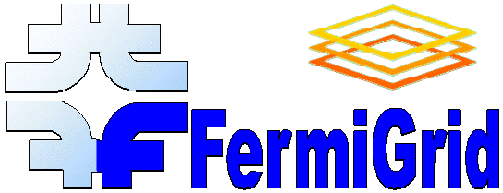
A group is an organizational entity defined by the VO which refers to a subdivision of the VO's overall project, and to which some subset of the VO's members are assigned, according to their responsibilities in the project. Each group has one or more group owners, group managers, and members, all of whom are registered VO members.

A group owner is responsible for creating and/or deleting groups within the group hierarchy that he or she controls, and for assigning additional group owners and/or group managers to these groups. A group owner is automatically a group manager of the group. A group owner may also assign individuals as members of any owned groups, and can view members' public personal information.

A group manager is responsible for assigning individuals as members of any managed groups.

Groups may have "group roles" associated with them. A group role is an attribute of a group and of the members of that group.

If you are registered with the fermilab VO, you can request to be added to multiple groups and be assigned group roles. In order to do so, you can browse the groups by clicking on the Search button below, decide what group and role you would like to belong to and send a request to VO administrator or to the group administrators if they exist.



VO Groups 2

Groups have been created for:

- /fermilab/accelerator
- /fermilab/astro
- /fermilab/hypercp
- /fermilab/ktev
- /fermilab/miniboone
- /fermilab/minos
- /fermilab/numi
- /fermilab/patriot
- /fermilab/theory

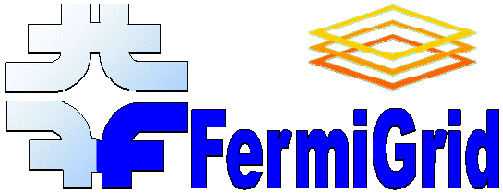
VO Groups 3

Additional groups and sub-groups can be created as desired.

- Send mail to the “helpdesk” or Dan Yocum.

We are looking for people to be the group administrators.

- Send mail to the “helpdesk” or Dan Yocum.



Links

FermiGrid:

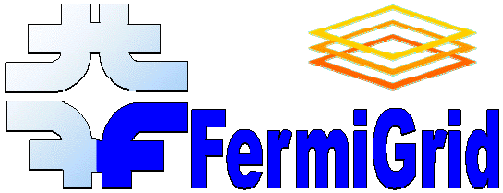
- http://fermigrid.fnal.gov

Open Science Grid:

- http://www.opensciencegrid.org

DoE Grids:

- http://www.doegrids.org/



Fin

Any Questions?